

REMARKS

Claim 2 has been amended to add the label “previously presented.” Claims 1-4, 6-15, 17-26, and 28-39 remain pending.

The Examiner rejected claims 1-37 under 35 U.S.C. §103(a) as being anticipated by Crump et al. (U.S. 6,892,245) in view of Gelb (U.S. 5,550,984) further in view of Aysan et al. (U.S. 2003/0108041). The Examiner’s rejections are respectfully traversed as follows.

Claim 1 is directed towards a “method for performing network address translation on data.” Claim 1 also recites “receiving a first data having a first source address and a first destination address, wherein the first data is sent by a first node in a first domain to a second node in a second domain, and wherein the first data is received into a first interface associated with the first domain and output from a second interface associated with the second domain, and wherein the first domain differs from the second domain.” Claim 1 further requires “if the first source address is a private address and if a binding between the first source address, the first interface, and a first public address is found, translating the first source address into the first public address specified by the found binding prior to sending the first data to the second domain destination.” That is, a private first source address is translated based on whether a binding between this private source address and the first interface (and a public address) is found.

If a binding is not found between this private address and this first interface, a new binding is formed: “if the first source address is a private address and if a binding between the first source address, the first interface, and a first public address is not found, translating the first source address into a selected public address and forming and storing a first binding between the first source address, the selected public address, and the first interface, wherein the translation is performed prior to sending the first data to the second domain destination.” For example, if a binding is found for a same private address and a different interface than the received first data, this binding is not used for translation of the first data’s source address and, instead, another selected public address is used for the translation and another binding is formed. Once a binding is formed for a private, source address of a particular host, this binding is used for all other data sent to and from this particular host regardless of the other host’s domain. This mechanism will prevent the same translation being used for different nodes in different private domains that happen to have a same private address while efficiently utilizing a single global address for each local address and its interface.

The remaining independent claims include mechanisms for performing the same operations as claim 1.

The Examiner admits that Crumb fails to teach or suggest such a mechanism for forming and utilizing a binding between a local address of a local host, public address and the local host's interface for data going to and from such local host, in the manner claimed. It is also respectfully submitted that the secondary references have the same deficiencies. The secondary reference Gelb is cited as disclosing forming a binding between private address, interface, and public address. However, the cited portions of Gelb merely refer generally to "software used to bind a network interface adapter (22) to the Internet or other private network. See Col. 5, Lines 28-30 (Emphasis added). At most, this binding is between an interface and a single network, rather than between an interface and a private and public address. This binding software is described as providing an address that allows a public user to find and attach to the front end of the security system. Supra Lines 31-32. This cited passage fails to teach or suggest forming a binding between an interface, private address, and public address of a particular node, in the manner claimed.

The secondary reference Aysan is used to teach performing translating an address based on a binding between an interface, private address, and public address of a particular node, in the manner claimed. Aysan appears to teach using interface addresses for routing purposes, rather than for performing translation of source or destination addresses. Aysan also fails to teach or suggest forming or using a binding between an interface, private address, and public address that are associated with a particular node, in the manner claimed. In the portions cited by the Examiner, Aysan starts by teaching a mapping between a private and public address (as defined in an ARP table) that are shared with routers in the a particular VPN, and various components of this VPN are described. See paragraph [0042]. Specifically, Aysan teaches a network interface 310, that receives a packet from a particular source having a private address (see paragraph [0045]), then "proceeds to look up (step 806) the private destination address 714 (10.20.1.1) in a routing table to learn that the packet should be sent to the remove CVR tunnel interface 412, which ...has an address of 10.1.2.1." See paragraph [0046]. Aysan notes that the ARP table also associates the addresses of particular interfaces, such as BR tunnel interface 314A and local CVR tunnel interface 312. See paragraph [0048]. The received packet is encapsulated with the addresses of the routing interfaces. See paragraph [0049]. The source address (or any other address) of the packet is not translated based on binding between an interface, private address, and public address, in the manner claimed. Additionally, Aysan fails to teach forming such a binding, in the manner claimed.

Accordingly, it is respectfully submitted that independent claims 1, 14, 25, and 36 are patentable over the cited references.

The Examiner's rejections of the dependent claims are also respectfully traversed. However, to expedite prosecution, all of these claims will not be argued separately. Claims 2-4, 6-13, 15, 17-24, 26, 28-35, and 37 each depend directly or indirectly from independent claims 1, 14, 25, or 36 and, therefore, are respectfully submitted to be patentable over cited art for at least the reasons set forth above with respect to claims 1, 14, 25, or 36. Further, the dependent claims require additional elements that when considered in context of the claimed inventions further patentably distinguish the invention from the cited art.

For example, claim 2 specifies operations for handling a second data having a private, source address that is the same as the private, source address of the first data, but the second data is being sent to a third domain that differs from the first data's first domain. Claim 2 recites "the third domain differs from the first domain but the second source address is the same as the first source address" and "if the second source address is a private address and if a binding between the second source address, the third interface, and a second public address is not found, translating the second source address into a second public address and forming and storing a second binding between the second source address, the second public address, and the third interface, wherein the translation is performed prior to sending the second data from the fourth domain interface." If this binding between "the second source address, the third interface, and the second public address" is found, claim 2 recites that "translating the second source address into the second public address specified by the found binding prior to sending the second data to the third domain destination." If the destination address alternatively matches up with this already existing binding (data is being transmitted to the third node), the destination address is also translated based on this same binding: "if a second destination binding between the second destination address, a second private address, and the fourth interface is found, translating the second destination address into the second private address specified by the second destination binding, wherein the translation of the second destination address is performed prior to sending the second data out the fourth interface to the fourth node." New claims 38 and 39 provide mechanisms for performing such operations. Thus, any data going to and from the same private node is translated based on this same binding which matches up with the interface of the private node, even when the other nodes have different domains. Crump fails to teach or suggest a mechanism for forming and using such a binding for translation, in the manner claimed.

Applicant believes that all pending claims are allowable and respectfully requests a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,
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